

We claim:

1. A process for preparing a solid lithium ion conductor having the composition $\text{Li}_{4-x}\text{Si}_{1-x}\text{P}_x\text{O}_4$, where x is at least 0.3 and not more than 0.7, by shaping and calcining $\text{Li}_{4-x}\text{Si}_{1-x}\text{P}_x\text{O}_4$, where x is at least 0.3 and not more than 0.7, and/or compounds which are converted into this during calcination, wherein the $\text{Li}_{4-x}\text{Si}_{1-x}\text{P}_x\text{O}_4$ and/or the compounds is/are used in the form of powder having a mean particle size of not more than 5 microns.
2. A process as claimed in claim 1, wherein the $\text{Li}_{4-x}\text{Si}_{1-x}\text{P}_x\text{O}_4$ and/or the compounds which are converted into this during calcination is/are used in the form of powder having a mean particle size of not more than 3 microns.
3. A process as claimed in claim 1 or 2, wherein lithium phosphate Li_3PO_4 and lithium silicate Li_4SiO_4 are used as compounds which are converted into $\text{Li}_{4-x}\text{Si}_{1-x}\text{P}_x\text{O}_4$ during calcination.
4. A process as claimed in claim 3, wherein shaping is carried out by means of cold isostatic pressing.
5. A process as claimed in claim 4, wherein a pressure of at least 1000 bar is employed during cold isostatic pressing.
6. A process as claimed in claim 3, wherein a temperature of at least 700°C is employed during calcination.